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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl. No. : 10/687,231 Confirmation No. 8054
Appellant : James T. Beals et al.
Filed : October 16, 2003
TC/A.U. : 1725
Examiner : Kuang Y. Lin
Docket No. : EH-10610(03-544)
Customer No. : 52237



Commissioner for Patents
P.O. Box 1450
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APPEAL BRIEF

Sir:

This is an appeal to the Board of Patent Appeals and Interferences from the final rejection, dated September 14, 2005, of claims 11 - 24 made by the Primary Examiner in Tech Center 1725.

REAL PARTY IN INTEREST

The real party in interest is United Technologies Corporation of Hartford, Connecticut.

RELATED APPEALS AND INTERFERENCES

There is no related pending or prior appeal, interference, or judicial proceeding known to Appellants, Appellants' representative, or assignee which may be related to, directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 11 - 24 are pending in the application and are on appeal. A copy of these claims is attached hereto in the Claims Appendix.

Claims 1 - 10 have been cancelled from the application.

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STATUS OF AMENDMENTS

No amendment after final rejection was filed in the instant application.

SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter relates to a refractory metal core (14) for maintaining a core (10) in a desired position with respect to a wax die (12). See FIGS. 1 and 2; also see page 3, lines 1 - 16 of the specification. As set forth in claim 11, the refractory metal core (14) comprises a core element (14) having a planar central portion (30) and at least one integrally formed spring tab means (20, 32) for providing spring loading when closed in the wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling. See FIGS. 1 and 3; also see page 4, line 1 to page 5, line 13 of the specification.

As set forth in claim 12, the spring tab means may include a plurality of spaced apart spring tabs. See page 4, lines 18 - 19 of the specification and FIG. 2.

As set forth in claims 13 and 18, the core element may be formed from a material selected from the group consisting of molybdenum, tantalum, niobium, tungsten, alloys thereof, and intermetallic compounds thereof. See page 4, lines 4 - 6 of the specification.

As set forth in claim 14, the core element has means (16, 16') for engaging the core (10) at a first end, a planar central portion (30), and a second end (20, 32) positioned at an angle to the planar central portion and having means (32) for engaging a slot in the wax die. See the specification from page 4, line 26 to page 5, line 2; also see FIGS. 3 and 4.

As set forth in claim 15, the second end (32) and the planar central portion (30) are arranged at an angle with respect to each other which causes the second end to abut a wall (38) of the slot (34) in the wax die (12'). See page 5, lines 5 - 9 of the specification; also see FIG. 3.

As set forth in claim 16, the second end (32) may include means (42) for mechanically locking the refractory metal core to a shell. As set forth in claim 17, the mechanical locking means may comprise at least one tab (32) having at least one hole (42). See page 5, lines 10 - 13 of the specification and FIG. 5.

The core element may have means (16, 16') for engaging the core at a first end and means (32) for abutting the wax die (12, 12') at a second end as set forth in claim 19. See FIGS. 1 and 3; see the specification from page 4, line 1 to page 5, line 9.

Further, the first end (16') may be connected to the planar central portion (30) by a right angle portion as set forth in claims 20 and 24. See FIGS. 1 and 3.

As set out in claim 21, the second end (32) may be attached to the planar central portion (30) so that it is at an angle with respect to the central planar portion. See FIGS. 1 and 3. Also see page 4, lines 30 - 31 of the specification.

As set out in claim 22, the spring tab means (20) may comprise at least one spring tab having a tapered end. See page 4, lines 21 - 22 of the specification.

As set out in claim 23, the spring tab means may comprise at least one spring tab having a non-tapered end. See page 4, lines 21 - 22 of the specification.

The present invention provides an improved technique for holding a ceramic core in position in a wax die during shelling. See page 2, lines 27 - 28 of the specification.

The refractory metal cores of the present invention typically have densities much higher than the cast superalloy and therefore counteract buoyancy forces better than ceramic cores, which improves casting yield by reducing kiss-out and wall thickness variations. See page 5, paragraph 30.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are to be reviewed on appeal:

(1) the rejection of claims 11 - 24 under 35 U.S.C. 112, second paragraph, as being indefinite;

(2) the rejection of claims 11 - 15 and 18 - 24 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,807,734 to Eldridge et al.;

(3) the rejection of claims 11 - 15 and 18 - 24 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,243,757 to Grabbe et al. or U.S. Patent No. 4,499,366 to Yoshida et al.

(4) the rejection of claims 11 - 24 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2004/0016119 to Eldridge et al. in view of U.S. Patent No. 6,807,734 to Eldridge et al.; and

(5) the rejection of claims 11 - 24 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,078,598 to Kelso et al. in view of U.S. Patent No. 3,957,104 to Terpay.

ARGUMENT

(a) *Claims 11 - 24 Are Definite*

Under 35 U.S.C. §112, Second Paragraph

In the final rejection, the Examiner rejects claims 11 - 24 under 35 U.S.C. §112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which appellants regard as their invention. The Examiner in making the rejection makes the following statement: "[t]hese claims define the refractory metal core in terms of a wax die. However the wax die is extraneous to the core."

Appellants submit that they have particularly pointed out and distinctly claimed the subject matter which Appellants regard as their invention.

The second paragraph of section 112 requires the specification of a patent to "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. §112, ¶2 (2000). To satisfy this requirement, the claim, when read in light of the specification, must apprise those skilled in the art of the scope of the claims. See *Miles Labs., Inc. v. Shandon, Inc.*, 997 F.2d 870, 875, 27 USPQ2d 1123 (Fed. Cir. 1993). The Examiner has not provided any reason as to why one of ordinary skill in the art having the claims before him could not understand the scope of the claims. Instead, the Examiner merely objects to certain claim language used by Appellants.

In independent claim 11, the invention which is being claimed is a refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting. The core element has "at least one integrally formed spring tab means for providing spring loading when closed in said wax die" Appellants submit that there is nothing indefinite about this claim language. Appellants could not more particularly point out and distinctly claim the subject matter which they regard as their invention. Certainly, the meaning of the words in the claim would be understood by one of skill in the art who read the specification.

In independent claim 14, Appellants again claim a refractory metal core for maintaining a core in a desired position with respect to a wax die and avoid core shift during casting. The refractory metal core comprises core element means for maintaining said core in said desired position with respect to said wax die. The claim also goes on to call for a core element having a second with "means for engaging a slot in said wax die." Again, there is nothing indefinite about this claim language. Appellants have particularly pointed out and distinctly claimed the subject matter which they regard as their invention.

All of the pending claims on appeal place the claimed features of Appellants' invention in the environment in which they are used. There is nothing wrong with that from the standpoint of the second paragraph of 35 U.S.C. 112. All of the pending claims are precise, clear, correct, and unambiguous. As stated in MPEP 2173.01,

"A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographer. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not used in ways that are contrary to accepted meanings in the art. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought."

The heart of the Examiner's indefiniteness rejection is that he is improperly objecting to the language used to define the subject matter for which patent protection is sought. This is contrary to the holding in the *Swinehart* case. Appellants submit that there is nothing wrong with specifying the function of a claimed element and the environment in which it is used.

MPEP 2173.02 points out that in reviewing a claim for compliance with the second paragraph of 35 U.S.C. §112, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. §112, second paragraph. The Examiner in making the instant rejection on review has failed to make any statement as to why any of the claims on appeal fail to serve the notice function of 35 U.S.C. §112, second paragraph.

With regard to the Examiner's comments about MPEP 2181, this section relates to identifying a 35 U.S.C. 112, sixth paragraph limitation. It is irrelevant to the issue of indefiniteness raised by this rejection.

For these reasons, the rejection of claims 11 - 24 under 35 U.S.C. §112, second paragraph, should be reversed.

(b) *Claims 11 and 14 Are
Not Anticipated By
Eldridge '734*

A prior art reference anticipates a patent claim if the reference discloses, either expressly or inherently, all of the limitations of the claim. See *EMI Group N. Am., Inc. v. Cypress Semiconductor Corp.*, 268 F.3d 1342, 1350, 60 USPQ2d 1423 (Fed.

Cir. 2001). Further, for prior art to anticipate a claim, it must be sufficient to enable one with ordinary skill in the art to practice the invention. See *Minn. Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1301, 64 USPQ2d 1270 (Fed. Cir. 2002).

Claim 11 is directed to a refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting. The refractory metal core comprises a core element formed from a refractory metal material. The core element has a planar central portion and at least one integrally formed spring tab means for providing spring loading when closed in said wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling.

The Eldridge et al. '734 patent is not directed to a refractory metal core for maintaining a core in a desired position with respect to a wax die. The Examiner will likely argue that the preamble of claim 11 is a statement of intended use and should not be given any patentable consideration. To the contrary, the Board should give the language of the preamble patentable weight since it gives life, meaning, and vitality to the claim and since this language serves to distinguish the prior art. See *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809, 62 USPQ2d 1781 (Fed. Cir. 2002). Also see *Bristol-Myers Squibb Co. v. Ben Venue Labs, Inc.*, 246 F.3d 1368, 1375, 58 USPQ2d 1508, 1513 (Fed. Cir. 2001) ("Clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention."); *Bell Communications Research Inc. v. Vitalink Communications Corp.*,

55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995) ("Dependence on a particular preamble phrase for antecedent basis limits claim scope because it indicates a reliance on both the preamble and the claim body to define the claimed invention."); *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161 (Fed. Cir. 1999) ("A preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning and vitality to the claims."). The Eldridge et al. '734 patent is directed to microelectronic contact structures and has nothing at all to do with a refractory metal core for maintaining a core in a desired position with respect to a wax die.

Still further, claim 11 is allowable because the Eldridge et al. '734 patent does not teach or suggest a structure having "at least one integrally formed spring tab means for providing spring loading when closed in said wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling." In making the rejection, the Examiner admits that what is shown in Eldridge et al. is a plurality of spring contact elements. The Examiner considers element 108 is the claimed spring tab; however, in column 9, lines 33 - 34, element 108 is said by Eldridge et al. to be a patterned masking layer. There is no explanation from the Examiner as to how the patterned masking layer could possibly function as the claimed "spring tab means." The Examiner also considers element 308 to be the claimed spring tab. As stated in column 13, lines 8 - 14 of Eldridge et al. '734, the spring contact structure 300 is provide with an integral protruding topological "tip feature" 308 to aid in effecting pressure connection to a terminal of an electronic component. There is no teaching in Eldridge et al. '734 of the

claimed "at least one integrally formed spring tab means for providing spring loading when closed in said wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling." The tip feature "308" is not a spring tab means and it does not provide spring loading when closed in a wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling. There is no disclosure in Eldridge et al. '734 of the contact element and/or the tip feature being used in this manner.

The principal error in the Examiner's analysis is that he has not considered each word of the claim when considering the issue of patentability. It is error not to fully and completely consider each element of the claim under scrutiny. In the instant case, the Examiner has failed to consider the functional limitations set forth in claim 11 and describe how these limitations are either inherently or expressly disclosed in Eldridge et al. '734.

Claim 14 is also not anticipated by Eldridge et al. '734. The cited reference fails to teach or suggest a "core element means for maintaining said core in said desired position with respect to said wax die" and/or "means for engaging said core at a first end, a planar central portion, and a second end attached to said planar central portion", and/or "means for engaging a slot in a wax die." With regard to the first grounds for distinction, the contact structure in Eldridge et al. '734 is not used to maintain a core in a desired position with respect to a wax die. Thus, it does not meet the claim limitation. The Examiner offers no explanation how Eldridge et al. '734 meets this claim limitation. With regard to the second distinction,

while the contact in Eldridge et al. may have a planar central portion and a second end attached to the central portion, it lacks any means for engaging a core at a first end. In making the rejection, the Examiner has not identified any such means. If the Examiner takes the position that this claimed feature is met by element 302, it should be noted that this element is merely described in Eldridge et al. '734 as being a base portion of the contact structure. Nothing in Eldridge et al. '734 says that it has any means for engaging another structure, in particular a core. With regard to the third distinguishing feature, there is nothing in Eldridge et al. '734 which discloses any means for engaging a slot in a wax die at the second end. The Examiner in making this rejection does not describe which element(s) in Eldridge et al. '734 meet this claim limitation.

For these reasons, claims 11 and 14 are not anticipated by Eldridge et al. '734.

*(c) Patentability of Claims
12, 13, 15, and 18 - 24
Over Eldridge et al. '734*

Claims 12, 13, 15, and 18 - 24 at a minimum are allowable over Eldridge et al. '734 for the same reasons as their parent claims.

Claim 12 is further allowable because Eldridge et al. '734 does not teach or suggest a plurality of spaced apart spring tabs on a single core element. Assuming arguendo that element 308 was a spring tab, Eldridge et al. '734 only describes a single element 308 on a single contact element 300. There is no disclosure of multiple elements 308 on a single contact element.

Claim 12 incorporates the subject matter of claim 11 and claim 11 only talks about there being a single core element, which core element may have a plurality of spring tabs.

Claim 13 is allowable because Eldridge et al. '734 does not teach or suggest a core element having the features of claim 11 formed from the claimed material.

Claim 15 is allowable because Eldridge et al. '734 does not disclose a core element wherein the angle between the second end and the planar central portion is such that the second end abuts a wall of the slot in the wax die. Eldridge et al. '734 could not meet this claim limitation because there is no wax die and no slot. The Examiner does not provide any explanation where these features can be found in the Eldridge et al. '734 reference.

Claim 18 is allowable because Eldridge et al. '734 does not teach or suggest a core element having the features of claim 14 formed from the claimed material.

Claim 19 is allowable because Eldridge et al. '734 does not disclose, either expressly or inherently, any means for engaging a core at a first end and any means for abutting the wax die at a second end. The Examiner does not even identify the elements in Eldridge et al. '734 which meets these claim limitations.

Claim 20 is allowable because the Examiner has not identified a first end in Eldridge et al. '734 which is connected to the planar portion by a right angle portion. Eldridge et al. '734 does not disclose such a feature.

Claim 21 is allowable because the Examiner has not identified any structure in Eldridge et al. '734 which meets the limitation of a second end at an angle with respect to the planar portion in combination with the features of claim 19. Eldridge et al. '734 does not disclose such a feature.

Claim 22 is allowable because Eldridge et al. '734 does not have a spring tab with a tapered end along with the other features of claim 11.

Claim 23 is allowable because Eldridge et al. '734 does not have a spring tab having a non-tapered end. If element 308 is the spring tab, then it is in the shape of a pyramid and lacks the claimed non-tapered end.

Claim 24 is allowable because Eldridge et al. '734 lacks the claimed right angle portion in combination with the features of claim 14.

(d) Patentability of Claims

11 and 14 Over Grabbe et al.

or Yoshida et al.

Claims 11 and 14 have been rejected under 35 U.S.C. §102(b) as being anticipated by Grabbe et al. or Yoshida et al. A review of these patents show that neither of them teaches or suggests all the elements of claims 11 and 14.

Grabbe et al. is directed to a method of making contact surface for electrical contact elements. The patent has absolutely nothing to do with a refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting.

The element 14 in Grabbe et al. is a contact element for a socket 10. The portion 76 of the element is stated to be a U-shaped stabilizing section which fits into a cavity 48. See column 2, lines 32 - 38 of Grabbe et al.

Even if one were to assume the element 14 to be a core element, it lacks a planar central portion and at least one integrally formed spring tab means for providing spring loading

when closed in a wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling. The portion 76 is not described as being a spring and/or providing spring loading. Certainly, it is not used with a wax die for positioning the core element in the wax die and for maintaining a core in position during shelling. For these reasons, claim 11 is not anticipated by Grabbe et al.

With respect to claim 14, Grabbe et al. does not anticipate this claim because the element 14 is not a core element means for maintaining a core in a desired position with respect to a wax die. Further, the element 14 lacks any means for engaging the core at a first end, a planar central portion, and a second end positioned at an angle to the planar central portion and having means for engaging a slot in the wax die.

Yoshida et al. relates to a ceramic heater device. It too has absolutely nothing to do with a refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting.

The elements 70 and 80 in Yoshida et al. are a pair of lead wires electrically connected to the ceramic heater 5 at ends 71 and 81. The ends 72 and 82 of the lead wires 70 and 80 are exposed to the outer surface of an insulator 6. The exposed end 72 of the wire 70 is electrically connected to a cap 9. The exposed end 82 of the lead wire 80 is electrically connected to a sleeve 11. See column 2, lines 39 - 50 of Yoshida et al.

As can be seen from the foregoing description, Yoshida et al. lacks a core element having a planar central portion and at least one integrally formed spring tab means for providing spring loading when closed in a wax die for creating a spring-like effect for positioning the core element in the wax die and

for maintaining the position of the core during shelling. For these reasons, Yoshida et al. does not anticipate claim 11.

With regard to claim 14, Yoshida et al. can not anticipate the claim because it lacks a core element means for maintaining a core in a desired position with respect to a wax die. Neither lead wire 70 or 80 is described as performing such a function. Further, the lead wires 70 and 80 lack any means for engaging a core at a first end, a planar central portion, and a second end positioned at an angle to the planar central portion and having means for engaging a slot in the wax die.

For these reasons, the rejections of claims 11 and 14 on anticipation grounds over Grabbe et al. or Yoshida et al. should be reversed.

(e) Patentability of Claims

12, 13, 15, and 18 - 24

Over Grabbe et al. or Yoshida et al.

Claim 12 is allowable because neither Grabbe et al. nor Yoshida et al. has a plurality of spaced apart spring tabs. Even if Grabbe's portion 76 is determined to be a spring tab, there is only one. As for Yoshida et al., it has no spring tab at all.

Claim 13 is allowable over Grabbe et al. or Yoshida et al. because neither reference teaches or suggests a core element having the structure set forth in claim 11 and formed from a material listed in claim 13.

Claim 15 is allowable because neither Grabbe et al. nor Yoshida et al. has a second end having an angle with respect to the planar central portion such that the second end abuts a wall of a slot in a wax die. The rejection made by the Examiner is

devoid of any explanation as to how either reference meets this claim limitation.

Claim 18 is allowable because neither reference teaches or suggests a core element having the structure set forth in claim 14 and formed from a material listed in claim 18.

Claim 19 is allowable because neither reference discloses a core element having means for engaging a core at a first end and means for abutting a wax die at a second end. The Examiner provides no explanation how either reference meets the limitations of claim 19 given the fact that neither reference discloses a core and a wax die.

Claim 20 is allowable because neither reference discloses a means for engaging a core at a first end, which first end is connected to the planar central portion by a right angle portion.

Claim 21 is allowable because neither reference discloses a second end attached a planar central portion and is at an angle with respect to the planar central portion. Grabbe et al. lacks the planar central portion as well as the claimed second end. The Examiner provides no indication in the rejection as to how either reference anticipates the limitations of claim 21.

Claim 22 is allowable because neither reference has at least one spring tab having a tapered end. Grabbe et al.'s element has a portion 76 without a tapered end. Yoshida et al. has no spring tab at all. The Examiner provides no indication in the rejection as to how either reference anticipates the limitations of claim 22.

Claim 23 is allowable because neither reference has a spring tab with a non-tapered end. In fact, neither reference has a spring tab. The Examiner provides no indication in the

rejection as to how either reference anticipates the limitations of claim 23.

Claim 24 is allowable because neither reference discloses a core element having a right angle portion connecting the first end to a planar central portion.

For these reasons, the rejection of claims 12, 13, 15, and 18 - 24 on anticipation grounds over Grabbe et al. or Yoshida et al. should be reversed.

*(f) Claims 11 - 24 Are
Allowable Over The Combination
of Eldridge '119 and Eldridge et al. '734*

Eldridge '119 is directed to a method of making a microelectronic spring contact. The method comprises forming a plurality of spring contacts on a sacrificial substrate and then releasing the spring contacts from the sacrificial substrate. The spring contacts have an elongated beam with a base end.

The Eldridge '119 has nothing at all to do with a refractory metal core for maintaining a core in a desired position with respect to a wax die. Still further, Eldridge '119 lacks a core element formed from a refractory material having a planar central portion and the at least one spring tab means of claim 11. Eldridge '119 also lacks the core element means and its features set out in claim 14. Still further, Eldridge '119 lacks the plurality of spaced apart spring tabs of claim 12, the material of claims 13 and 18, the angle of claim 15 between the second end and the planar central portion such that the second end abuts a wall of the slot in the wax die (Eldridge '119 does not even have the slot or the wax die); the means for mechanically locking the refractory metal core to a shell of

claim 16 (Eldridge '119 does not even have a shell); the mechanical locking means comprising at least one tab having at least one hole of claim 17; the core engaging means and wax die abutting means of claim 19; the first end connected to the planar central portion by a right angle portion of claim 20; the second end attached to the planar central portion which is at an angle with respect to the planar central portion of claim 21; the at least one spring tab having a tapered end of claim 22; the at least one spring tab having a non-tapered end of claim 23; and the right angle portion of claim 24.

With regard to the elements 241 and 244 mentioned by the Examiner, element 241 is described in Eldridge '119 to be a centroid of contact 240 and element 244 is the base end 244. Element 257 is described in Eldridge '119 to be a shoulder portion of the base end 224. There is no spring function attached to any of these elements. Therefore, the Examiner considering them to be spring tabs is without any basis in fact and without any basis in the reference. Element 260 is a pit for aligning the fixture 256. The tip aligning fixture 256 is a silicon wafer or slab. Thus, there is no disclosure in Eldridge '119 that the pit 260 services to mechanically lock a refractory metal core to a shell. Nor does the pit 260 comprise at least one tab having at least one hole.

With regard to the remaining features of the claimed invention, the Examiner makes no effort to point out where any of these features can be found in Eldridge '119.

The Eldridge '734 patent has been discussed above, which discussion is incorporated by reference herein. As pointed out above, it does not teach or suggest the features of claims 11 - 24. Therefore, while Eldridge '734 may be combined with Eldridge '119 so that the electrical spring contacts of may be formed

from a refractory material, it does not cure the aforementioned deficiencies of Eldridge '119. Simply stated, the combined references do not teach or suggest the invention set forth in any of claims 11 - 24. Most significantly, neither reference is directed to solving the problem solved by Appellants to maintain a core in a desired position with respect to a wax die and avoiding core shift during casting. As a result, the references taken together do not, and could not, teach or suggest the solution arrived at by Appellants. For example, the references when combined together still fail to teach or suggest the claimed core element having the claimed features of claims 11 and 14 and/or any of the other features of claims 12, 13, and 15 - 24.

It should be noted that the Examiner in making this rejection makes no effort to say how the references when combined arrive at the invention set forth in claims 11 - 24.

For these reasons, the rejection of claims 11 - 24 on obviousness grounds over Eldridge et al. '119 in view of Eldridge et al. '734 should be reversed.

*(g) Patentability of Claims
11 - 24 Over The Combination of
Kelso in view of Terpay*

Kelso et al. is directed to a means for improved positioning of a strongback (20) in a four part pattern mold (46) for formation of expendable patterns thereon. Blade halves (18) and (19) are cast on opposite sides of the central mold element or strongback (20). One embodiment of the strongback is shown in FIGS. 3 - 5. A plurality of locators (40a and b and 42a and b) are used to position the strongback. These pattern

locators are collinear with and in close proximity to the bonding locators (34a and b).

In one embodiment of the Kelso et al. invention (FIG. 9) the locating means in the pattern mold may comprise fixed or retractable rod-like pins (44) adapted to intimately engage the detent and projection of each mold locator.

After the strongback is suspended in the pattern mold, pattern material, such as molten wax, is introduced therein to form patterns (48a and b) directly on opposite sides of the strongback.

It is submitted that Kelso et al. is not directed to a refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting. The pins (44) in Kelso are not a core. The only core in Kelso et al. is the strongback (20). Further, the apparatus in Kelso et al. does not have a wax die. Therefore, Kelso et al. does not, and could not, have a core element, such as that claimed in claim 11, having a planar central portion and at least one integrally formed spring tab means for providing spring loading when closed in a wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling. Nor does Kelso et al. have the claimed core element means for maintaining the core in the desired position with respect to the wax die, which core element has the claimed engaging means at the first end and the means for engaging a slot in the wax die of claim 14.

Kelso et al. also lacks the plurality of spaced apart spring tabs of claim 12, the material of claims 13 and 18, the angle of claim 15 between the second end and the planar central portion such that the second end abuts a wall of the slot in the

wax die (Kelso et al. does not even have the slot or the wax die); the means for mechanically locking the refractory metal core to a shell of claim 16 (Kelso et al. does not even have a shell); the mechanical locking means comprising at least one tab having at least one hole of claim 17; the core engaging means and wax die abutting means of claim 19; the first end connected to the planar central portion by a right angle portion of claim 20; the second end attached to the planar central portion which is at an angle with respect to the planar central portion of claim 21; the at least one spring tab having a tapered end of claim 22; the at least one spring tab having a non-tapered end of claim 23; and the right angle portion of claim 24.

The Examiner does not describe how Kelso et al. substantially shows the invention as claimed. The Examiner does say that he considers one branch of the fork in pin (44) to be a spring tab, yet Kelso et al. attributes no spring like effect to either branch of the fork. Even if one branch of the fork of the pin (44) is considered to be a spring tab, it does not position the core element in a wax die. The Examiner does not point out how one branch of the pin can function as a spring tab and achieve the function set forth in the claim.

The Examiner goes on to say that the other branch of the fork is the first end. However, there is no explanation of how a single branch of the fork can engage the core. What engages the core in Kelso et al. is both branches of the fork of the pin (44).

With respect to claim 14 and the application of Kelso et al., the Examiner has not explained how if the second end is one branch of the fork, how this second end engages a slot in a wax die. Taking the Examiner's analysis of Kelso et al. meeting the limitations of claim 14 would be an impossibility.

With regard to the secondary reference to Terpay, it is cited solely for its showing that it is conventional to make core locating means out of molybdenum, tungsten, or tantalum. This statement is not accurate. What is shown in Terpay is a plurality of pins extending out of a wax duplicate (10). A slurry is applied to the surfaces of the wax duplicate to form mold members (12) and (13). Thereafter, molten metal is introduced into the cavity between the mold members (12) and (13). This causes the wax duplicate to dissolve. Thus, the pins (12) in Terpay are not core locating means, they are mold member locating devices.

The Examiner concludes that it would have been obvious to make the pin (44) of Kelso et al. with the refractory metal in view of Terpay. The rejection is defective in that the Examiner never states what would motivate one of ordinary skill in the art to make the proposed combination.

Even if the references were combinable as suggested by the Examiner, Terpay would not cure the aforementioned deficiencies of Kelso et al. It should be noted that no embodiment in either reference has such features as the spring tab means of claim 11, the plurality of spring tabs of claim 12 (no reason to provide Kelso with a plurality of forks, so there can not be a plurality of spring tabs), the slot engaging means of claim 14 (if a branch of the fork is the second end, it always contacts a surface of the strongback, it would never contact a slot in a wax die if a wax die were present), the angle of claim 15 causing the second end to abut a wall of the slot in the wax die (if there is no wax die, there is no angle of the pin 44 which would cause the second end to abut a wall of a slot - in fact, this is impossible because the purported second end is always in contact with the strongback), the mechanical locking means of

claims 16 and 17, the core engaging means and wax die abutting means of claim 19 (both branches of the fork of pin 44 contact the strongback, so if they are the first and second ends, there can never be a wax die abutting means), the first end connected to the planar central portion by a right angle portion of claim 20 (the branches of the fork are always at an angle and therefore could never be at a right angle to a central planar portion), the planar central portion of claim 21 (the pin 44 has no planar central portion), the tapered end spring tab of claim 22 (neither fork branch in Kelso et al. is tapered or described as having a spring function), the non-tapered end spring tab of claim 23 (there is no spring element in pin 44), and the right angle portion connecting the first end to the central portion of claim 24 ((the branches of the fork are always at an angle and therefore could never be at a right angle to a central planar portion). In fact, the combination of references could not have these claimed features.

With respect to claims 16 and 17, the Examiner says that when joining two parts together, it is conventional to provide a hole or recess in one of the parts as a locking means such that the material of the other part can be filled inside the hole or recess to interlock the parts. While this may be conventional, Kelso et al. has chosen not to do it. The Examiner provides no explanation as to what would motivate one of ordinary skill in the art to provide Kelso et al. with such a hole. Further, even if Kelso et al. had such a hole, it would not lock a refractory metal core to a shell since there is no shell. Nor is there anything which would motivate one of ordinary skill in the art to place the at least one hole in a tab.

For these reasons, the rejection of claims 11 - 24 on obviousness grounds over Kelso et al. in view of Terpay should be reversed.

CONCLUSION

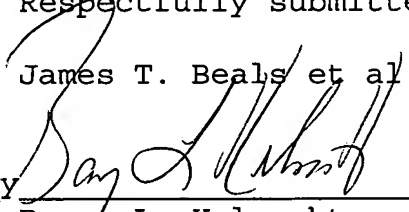
For the foregoing reasons, the rejections of record should be reversed and the instant application should be remanded to the Primary Examiner in Tech Center 1725 for allowance of claims 11 - 24.

APPEAL BRIEF FEE

The Commissioner is hereby authorized to charge said Appeal Brief Fee of \$500.00 to Deposit Account No. 21-0279. Should the Commissioner determine that an additional fee is due, he is hereby authorized to charge said additional fee to said Deposit Account.

Respectfully submitted,

James T. Beals et al.

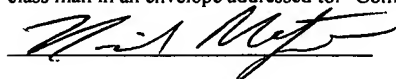
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IN TRIPLICATE

Date: February 8, 2006

I, Nicole Motzer, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on February 8, 2006.



CLAIMS APPENDIX A

11. A refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting comprising:

a core element formed from a refractory metal material;

said core element having a planar central portion and at least one integrally formed spring tab means for providing spring loading when closed in said wax die for creating a spring-like effect for positioning the core element in the wax die and maintaining the position of the core during shelling.

12. A refractory metal core according to claim 11, wherein said spring tab means includes a plurality of spaced apart spring tabs.

13. A refractory metal core according to claim 11, wherein said core element is formed from a material selected from the group consisting of molybdenum, tantalum, niobium, tungsten, alloys thereof, and intermetallic compounds thereof.

14. A refractory metal core for maintaining a core in a desired position with respect to a wax die and avoiding core shift during casting comprising:

core element means for maintaining said core in said desired position with respect to said wax die, said core element

means comprising a core element formed from a refractory metal material; and

said core element having means for engaging said core at a first end, a planar central portion, and a second end attached to said planar central portion, said second end being positioned at an angle to said planar central portion and having means for engaging a slot in said wax die.

15. A refractory metal core according to claim 14, wherein the angle between the second end and the planar central portion is such that said second end abuts a wall of said slot in said wax die.

16. A refractory metal core according to claim 14, wherein said second end includes means for mechanically locking the refractory metal core to a shell.

17. A refractory metal core according to claim 16, wherein said mechanical locking means comprises at least one tab having at least one hole.

18. A refractory metal core according to claim 14, wherein said core element is formed from a material selected from the group consisting of molybdenum, tantalum, niobium, tungsten, alloys thereof, and intermetallic compounds thereof.

19. A refractory metal core according to claim 11, further comprising said core element having means for engaging said core at a first end and means for abutting said wax die at a second end.

20. A refractory metal core according to claim 19, wherein said first end is connected to said planar central portion by a right angle portion.

21. A refractory metal core according to claim 19, wherein said second end is attached to said planar central portion and is at an angle with respect to said planar central portion.

22. A refractory metal core according to claim 11, wherein said spring tab means comprises at least one spring tab having a tapered end.

23. A refractory metal core according to claim 11, wherein said spring tab means comprises at least one spring tab having a non-tapered end.

24. A refractory metal core according to claim 14, further comprising a right angle portion connecting said first end to said central portion.

EVIDENCE APPENDIX B

Not Applicable

RELATED PROCEEDINGS APPENDIX C

Not Applicable